GENERAL CHEMISTRY

(CHLORIDE, NITRATE, SULFATE, FLUORIDE, TOTAL ALKALINITY, BICARBONATE, HYDROXIDE, TOTAL HARDNESS, pH AND SPECIFIC CONDUCTANCE)

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ICF TECHNOLOGY INCORPORATED

URS TDMT Only TDCN: 0305
Project #: 62251 Loc: 09.64 Type: 64

MEMORANDUM

TO: Kevin Mayer
Environmental Engineer
South Coast Groundwater Section (H-6-4)

THROUGH: Richard Bauer
Environmental Scientist
Quality Assurance Management Section (P-3-2)

FROM: Margie D. Weiner
Senior Data Review Oversight Chemist
Environmental Services Assistance Team (ESAT)

DATE: June 29, 1993

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Newmark-Muscoy
EPA SSI NO.:	J5
CERCLIS I.D. NO.:	CAD981434517
CASE/SAS NO.:	LV3S39 Memo #10
SDG NO.:	SY5673
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance
SAMPLE NO.:	11 Water Samples (See Case Summary)
COLLECTION DATE:	May 3 through 7, 1993
REVIEWER:	Chris Davis, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)
Steve Remaley, TPO USEPA Region IX

TPO: [ ]FYI [X]Attention [ ]Action
SAMPLING ISSUES: [ ]Yes [X]No

Data Validation Report

Case No.: LV3S39 Memo #10
Site: Newmark-Muscoy
Laboratory: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF
Date: June 29, 1993

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: SY5664, SY5665, SY5673 through SY5677, and SY5679 through SY5682

COLLECTION DATE: May 3 through 7, 1993
SAMPLE RECEIPT DATE: May 4 through 8, 1993

CONCENTRATION & MATRIX: Low Concentration Groundwater Samples

FIELD QC: Field Blanks (FB): None
Equipment Blanks (EB): None
Background Samples (BG): None
Duplicates (D1): SY5664 and SY5665

LABORATORY QC: Matrix Spike: SY5679
Duplicates: SY5679

ANALYSIS: SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance (SC)

Analyte	Method	Date Analyzed
Fluoride	SM 4500-F-C	May 17, 1993
IC	EPA 300.0	May 4 through 8, 1993
Alkalinity	SM 2320	May 14, 1993
Hardness	EPA 130.2	May 14, 1993
pH	EPA 150.1	May 4 through 8, 1993
SC	EPA 120.1	May 14, 1993

IC = Chloride, Nitrate-N, and Sulfate
SC = Specific Conductance
SM = Standard Methods

METHOD NON-COMPLIANCE

TPO ATTENTION: According to the Special Analytical Services (SAS) Client Request Forms (CRFs), the 0.10 N and 0.05 N H_2SO_4 titrants for the alkalinity analyses are to be standardized on a daily basis, and the normality of the EDTA titrant for the hardness analyses is to be checked at the beginning of each day. The titrants for the alkalinity analyses were standardized on April 28, 1993, and the analyses were performed on May 14, 1993. The normality of the EDTA solution was checked on May 2, 1993, and the analyses were performed on May 14, 1993. This is not expected to affect the quality of the data.

ADDITIONAL COMMENTS:

For the analyses by IC, most of the samples in this SDG were analyzed diluted by factors 2, 5, or 10, and were not analyzed undiluted. The detection limits for the IC analytes are less than or equal to the contract required detection limits (CRDL) when multiplied by these dilution factors. Note that the matrix specific quality control (QC) sample (matrix spike and duplicate samples) analyses for the IC analytes were performed on 5X dilutions of these samples, and not on the undiluted QC sample matrix.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. Laboratory blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the SAS Client Request Forms (CRFs) for analyses listed above, EPA 600/4-79-020 Methods for Chemical Analysis of Water and Wastes (March, 1983), Standard Methods for the Examination of Water and Wastewater, 17th Edition (1989), and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," (October, 1989).

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter	Acceptable	Comment
1. Data Completeness	Yes	
2. Sample Holding Times	Yes	
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	N/A	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	Yes	
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	Yes	
10. GFAA QC Analysis	N/A	
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	N/A	
12. Sample Quantitation	Yes	A,B
13. Sample Result Verification	Yes	

N/A = Not Applicable

III. Validity and Comments

A. The following results are estimated and are flagged "J" in Table 1A.

- All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

B. The detection limit for nitrate-N in samples SY5675 and SY5677 has been raised by a factor of 5, and the detection limit for nitrate-N in sample SY5676 has been raised by a factor of 10 due to the 5X and 10X dilutions of the initial injections. No undiluted injections were performed for these samples.

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #10
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 29, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L

Station Location	WMW08B-21			WMW08B-22			WMW01B-21			MUNI-103-01			WMW01C-21			WMW01G-21			WMW01H-21		
Sample I.D.	SY5664 D1			SY5665 D1			SY5673			SY5674			SY5675			SY5676			SY5677		
Date of Collection	5/07/93			5/07/93			5/03/93			5/04/93			5/04/93			5/05/93			5/04/93		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Co	Result	Val	Com
Fluoride	0 23			0 23			0 24			0 46			0.32			0.36			0 32		
Chloride	6 2			6 2			15 8			10 2			16 4			30 5			9 8		
Nitrate-N	1 4			1 2			1 6			6 4			0 05 U		B	0.10 U		B	0 05 U		B
Sulfate	32 7			28 0			81 3			52 3			32 8			132			37 9		
Total Alkalinity*	305			261			154			191			215			80 8			129		
Bicarbonate Alkalinity*	305			261			154			191			215			80 8			129		
Carbonate Alkalinity*	20 0 U			20 0 U			20 0 U			20 0 U			20 0 U			20.0 U			20 0 U		
Hydroxide Alkalinity*	20 0 U			20 0 U			20 0 U			20 0 U			20 0 U			20 0 U			20 0 U		
Hardness*	73 9			73 9			201			248			248			164			122		
pH, units	6 9			6 9			7 6			7 4			6 7			4.9			6 5		
Specific Conductivity**	641			572			512			532			571			1150			374		

*As CaCO3 **Specific Conductivity in umhos/cm
Val-Validity Refer to Data Qualifiers in Table 1B
Com -Comments Refer to the Corresponding Section in the Narrative for each letter
IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

N/A-Not Applicable
D1, D2, etc -Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #10
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 29, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L

Station Location	WMW-11-21			WMW-12-21			MUNI-107-01			MUNI-109-01			LAB BLANK 1			LAB BLANK			LAB BLANK		
Sample I.D.	SY5679			SY5680			SY5681			SY5682											
Date of Collection	5/05/93			5/05/93			5/05/93			5/06/93											
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Co	Result	Val	Com
Fluoride	0.48			0.43			0.49			0.47			0.10 U			—			—		
Chloride	9 0			10 3			16 2			10 1			0 29 L	J	A	0.11 L	J	A	0.05 U		
Nitrate-N	3.5			5.5			12.6			7.4			0.01 U			0.01 U			0 01 U		
Sulfate	34 0			31 1			57 9			81.1			0 05 U			0 05 U			0 05 U		
Total Alkalinity*	254			215			208			213			20 0 U			—			—		
Bicarbonate Alkalinity*	254			215			208			213			20 0 U			—			—		
Carbonate Alkalinity*	20.0 U			20 0 U			20.0 U			20 0 U			20 0 U			—			—		
Hydroxide Alkalinity*	20 0 U			20 0 U			20 0 U			20 0 U			20 0 U			—			—		
Hardness*	301			259			305			271			5 0 U			—			—		
pH, units	7 1			7 1			7 1			7 1			—			—			—		
Specific Conductivity**	598			532			635			658			0 U			—			—		

*As CaCO3 **Specific Conductivity in umhos/cm
Val-Validity Refer to Data Qualifiers in Table 1B
Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.
IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

N/A-Not Applicable
D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #10
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 29, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L

Sample I.D.	LAB BLANK 4			LAB BLANK 5			IDL			CRDL											
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Co	Result	Val	Com
Fluoride	---			---			0.10			0 10											
Chloride	0.05 U			0.05 U			0.05			1 0											
Nitrate-N	0.01 U			0.01 U			0 01			0 10											
Sulfate	0 05 U			0 05 U	J	A	0 05			1 0											
Total Alkalinity*	---			---			N/A			20 0											
Bicarbonate Alkalinity*	---			---			N/A			20 0											
Carbonate Alkalinity*	---			---			N/A			20.0											
Hydroxide Alkalinity*	---			---			N A			20 0											
Hardness*	---			---			N/A			5 0											
pH. units	---			---			N A			N A											
Specific Conductivity**	---			---			N/A			N/A											

*As CaCO3 **Specific Conductivity in umhos/cm
Val-Validity Refer to Data Qualifiers in Table 1B
Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.
IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

N/A-Not Applicable
D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the EPA draft document, "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).

L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.

R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.

UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

Laboratory Blanks and Associated samples

Lab Blank 1: Fluoride, Alkalinity, Hardness, pH, and Specific Conductance: All of the samples
IC analytes: SY5673

Lab Blank 2: IC analytes: SY5674, SY5675, and SY5677

Lab Blank 3: IC analytes: SY5676, SY5679, SY5680, and SY5681

Lab Blank 4: IC analytes: SY5682

Lab Blank 5: IC analytes: SY5664 and SY5665

TPO: [ ]FYI [X]Attention [ ]Action Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV3S39 Memo #10 LABORATORY Region IX, Las Vegas

SDG NO. SY5673 SITE NAME Newmark-Muscoy

SOW NO. _____ REVIEW COMPLETION DATE June 29, 1993

REVIEWER [ ] ESD [X] ESAT REVIEWER'S NAME Chris Davis

NO. OF SAMPLES 11 WATER _____ SOIL _____ OTHER

	ICP	GFAA	Hg	Inorganics
1. HOLDING TIMES				0
2. CALIBRATION				0
3. BLANKS				0
4. ICP INTERFERENCE CHECK SAMPLE (ICS)				
5. LABORATORY CONTROL SAMPLE (LCS)				0
6. DUPLICATE ANALYSIS				0
7. MATRIX SPIKE ANALYSIS				0
8. METHOD OF STANDARD ADDITION (MSA)				
9. ICP SERIAL DILUTION				
10. SAMPLE QUANTITATION				0
11. SAMPLE VERIFICATION				0
12. GFAA ANALYTICAL SPIKE				
13. OVERALL ASSESSMENT				0

0 - No problems or minor problems that affect data quality.
X - No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.
M - More than about 5% of the data points are qualified as estimates.
Z - More than about 5% of the data points have been rejected.

TPO ATTENTION: According to the SAS CRFs, the 0.10 N and 0.05 N H_2SO_4 titrants for the alkalinity analyses are to be standardized on a daily basis, and the normality of the EDTA titrant for the hardness analyses is to be checked at the beginning of each day. The titrants for the alkalinity analyses were standardized on April 28, 1993, and the analyses were performed on May 14, 1993. The normality of the EDTA solution was checked on May 2, 1993, and the analyses were performed on May 14, 1993. This is not expected to affect the quality of the data.

AREA OF CONCERN: For the analyses by IC, most of the samples in this SDG were analyzed diluted by factors 2, 5, or 10, and were not analyzed undiluted. The matrix specific quality control (QC) sample (matrix spike and duplicate samples) analyses for the IC analytes were performed on 5X dilutions of these samples, and not on the undiluted QC sample matrix. No reason was given as to why these samples were not analyzed undiluted prior to these dilutions.

TPO: [ ]FYI [X]Attention [ ]Action Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV3S39 Memo #13 LABORATORY Region IX, Las Vegas

SDG NO. SY5684 SITE NAME Newmark-Muscoy

SOW NO. _____ REVIEW COMPLETION DATE July 6, 1993

REVIEWER [ ] ESD [X] ESAT REVIEWER'S NAME Chris Davis

NO. OF SAMPLES 4 WATER _____ SOIL _____ OTHER

	ICP	GFAA	Hg	Inorganics
1. HOLDING TIMES				0
2. CALIBRATION				0
3. BLANKS				0
4. ICP INTERFERENCE CHECK SAMPLE (ICS)				
5. LABORATORY CONTROL SAMPLE (LCS)				0
6. DUPLICATE ANALYSIS				0
7. MATRIX SPIKE ANALYSIS				0
8. METHOD OF STANDARD ADDITION (MSA)				
9. ICP SERIAL DILUTION				
10. SAMPLE QUANTITATION				0
11. SAMPLE VERIFICATION				0
12. GFAA ANALYTICAL SPIKE				
13. OVERALL ASSESSMENT				0

O = No problems or minor problems that affect data quality.
X = No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.
M = More than about 5% of the data points are qualified as estimates.
Z = More than about 5% of the data points have been rejected.
N/A = Not Applicable.

TPO ATTENTION: According to the SAS CRF, the 0.10 N and 0.05 N H_2SO_4 titrants for the alkalinity analyses are to be standardized on a daily basis. The titrants for the alkalinity analyses were standardized on April 28, 1993, and the analyses were performed on May 14, 1993.

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ICF TECHNOLOGY INCORPORATED

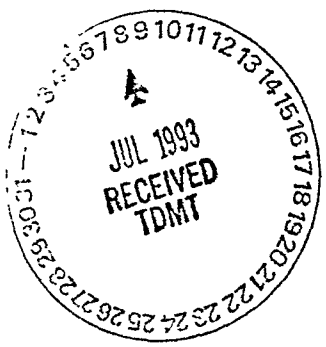
URS TDMT Only TDCN: 0316
Project #: 62251 Loc: 09.64 Type: 64

MEMORANDUM

TO: Kevin Mayer
Environmental Engineer
South Coast Groundwater Section (H-6-4)

THROUGH: Richard Bauer
Environmental Scientist
Quality Assurance Management Section (P-3-2)

FROM: Margie D. Weiner
Senior Data Review Oversight Chemist
Environmental Services Assistance Team (ESAT)



DATE: July 6, 1993

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Newmark-Muscoy
EPA SSI NO.:	J5
CERCLIS I.D. NO.:	CAD981434517
CASE/SAS NO.:	LV3S39 Memo #13
SDG NO.:	SY5684
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance
SAMPLE NO.:	4 Water Samples (See Case Summary)
COLLECTION DATE:	May 24 and 25, 1993
REVIEWER:	Chris Davis, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)
Steve Remaley, TPO USEPA Region IX
Larry Zinky, URS SAC
TPO: [ ]FYI [X]Attention [ ]Action
SAMPLING ISSUES: [ ]Yes [X]No

Data Validation Report

Case No.: LV3S39 Memo #13
Site: Newmark-Muscoy
Laboratory: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF
Date: July 6, 1993

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: SY5664, SY5665, SY5684 through SY5677, and SY5679 through SY5682

COLLECTION DATE: May 24 and 25, 1993
SAMPLE RECEIPT DATE: May 25 and 26, 1993

CONCENTRATION & MATRIX: Low Concentration Groundwater Samples

FIELD QC: Field Blanks (FB): None
Equipment Blanks (EB): None
Background Samples (BG): None
Duplicates (D1): SY5685 and SY5686

LABORATORY QC: Matrix Spike: SY5687
Duplicates: SY5687

ANALYSIS: SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance (SC)

Analyte	Method	Date Analyzed
Fluoride	SM 4500-F-C	June 7, 1993
IC	EPA 300.0	May 25 and 26, 1993
Alkalinity	SM 2320	June 4, 1993
Hardness	EPA 130.2	June 7, 1993
pH	EPA 150.1	May 25 and 26, 1993
SC	EPA 120.1	June 7, 1993

IC = Chloride, Nitrate-N, and Sulfate
SC = Specific Conductance
SM = Standard Methods

TPO ATTENTION:

According to the Special Analytical Services (SAS) Client Request Form (CRF), the 0.10 N and 0.05 N H_2SO_4 titrants for the alkalinity analyses are to be standardized on a daily basis. The titrants for the alkalinity analyses were standardized on April 28, 1993, and the analyses were performed on June 4, 1993. This is not expected to affect the quality of the data.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. Laboratory blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the SAS Client Request Forms (CRFs) for analyses listed above, EPA 600/4-79-020 Methods for Chemical Analysis of Water and Wastes (March, 1983), Standard Methods for the Examination of Water and Wastewater, 17th Edition (1989), and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," (October, 1989).

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter	Acceptable	Comment
1. Data Completeness	Yes	
2. Sample Holding Times	Yes	
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	N/A	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	Yes	
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	Yes	
10. GFAA QC Analysis	N/A	
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	N/A	
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	

N/A = Not Applicable

III. Validity and Comments

A. The following results are estimated and are flagged "J" in Table 1A.

- All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #13
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: July 6, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride; Chloride, Nitrate-N, and Sulfate; Bicarbonate, Carbonate, Hydroxide, and Total Alkalinity; Hardness; Specific Conductance; and pH

Concentration in mg/L

Station Location	WMW113-01			WMW114-01			WMW114-02			WMW115-01			Lab Blank			Lab Blank			IDL		
Sample I.D.	SY5684			SY5685 D1			SY5686 D1			SY5687											
Date of Collection	05/24/93			05/25/93			05/25/93			05/24/93											
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.22			0.28			0.29			0.19			0.10 U			—			0.10		
Chloride	6.1			4.8			4.9			14.3			0.05 U			0.05 U			0.05		
Nitrate-N	3.5			3.3			3.3			5.0			0.01 U			0.01 U			0.01		
Sulfate	27.8			37.0			36.9			51.4			0.05 U			0.06 L	J	A	0.05		
Total Alkalinity*	153			303			298			423			2.0/20.0 U			—			N/A		
Bicarbonate Alkalinity*	153			303			298			423			2.0/20.0 U			—			N/A		
Carbonate Alkalinity*	20.0 U			20.0 U			20.0 U			20.0 U			2.0/20.0 U			—			N/A		
Hydroxide Alkalinity*	20.0 U			20.0 U			20.0 U			20.0 U			2.0/20.0 U			—			N/A		
Hardness*	189			326			332			484			5.0 U			—			5.0		
pH, units	6.4			6.7			6.6			6.6			—			—			N/A		
Specific Conductance**	408			641			650			914			—			—			N/A		

* As CaCO3 **Specific Conductance in umhos/cm
Val-Validity Refer to Data Qualifiers in Table 1B
Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.
IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

N/A-Not Applicable
D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #13
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: July 6, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride; Chloride, Nitrate-N, and Sulfate; Bicarbonate, Carbonate, Hydroxide, and Total Alkalinity; Hardness; Specific Conductance; and pH

Concentration in mg/L

Station Location Sample I.D. Date of Collection	CRDL																				
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.10																				
Chloride	1.0																				
Nitrate-N	0.10																				
Sulfate	1.0																				
Total Alkalinity*	2.0/20.0																				
Bicarbonate Alkalinity*	2.0/20.0																				
Carbonate Alkalinity*	2.0/20.0																				
Hydroxide Alkalinity*	2.0/20.0																				
Hardness*	5.0																				
pH, units	N/A																				
Specific Conductance**	N/A																				

* As CaCO3 **Specific Conductance in umhos/cm
Val-Validity Refer to Data Qualifiers in Table 1B
Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.
IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

N/A-Not Applicable
D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background
CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the EPA draft document, "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).

L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.

R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.

UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

Laboratory Blanks and Associated samples

Lab Blank 1: Fluoride, Alkalinity, Hardness, pH, and Specific Conductance: All of the samples
IC analytes: SY5684 and SY5687

Lab Blank 2: IC analytes: SY5685 and SY5686

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ICF TECHNOLOGY INCORPORATED

URS TDMT Only TDCN: 0299
Project #: 62251 Loc: 09.64 Type: 64

MEMORANDUM

TO: Kevin Mayer
Environmental Engineer
South Coast Groundwater Section (H-6-4)

THROUGH: Richard Bauer
Environmental Scientist
Quality Assurance Management Section (P-3-2)

FROM: Margie D. Weiner
Senior Data Review Oversight Chemist
Environmental Services Assistance Team (ESAT)

DATE: June 8, 1993

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Newmark-Muscoy
EPA SSI NO.:	J5
CERCLIS I.D. NO.:	CAD981434517
CASE/SAS NO.:	LV3S39 Memo #03
SDG NO.:	SY5568
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance
SAMPLE NO.:	20 Water Samples (See Case Summary)
COLLECTION DATE:	April 16 through 29, 1993
REVIEWER:	Chris Davis, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)
Steve Remaley, TPO USEPA Region IX

TPO: [ ]FYI [X]Attention [ ]Action
SAMPLING ISSUES: [X]Yes [ ]No

Data Validation Report

Case No.: LV3S39 Memo #03
Site: Newmark-Muscoy
Laboratory: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF
Date: June 8, 1993

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: SY5568, SY5652 through SY5663, and SY5666 through SY5672

COLLECTION DATE: April 16 through 29, 1993
SAMPLE RECEIPT DATE: April 20 through April 30, 1993

CONCENTRATION & MATRIX: Low Concentration Groundwater Samples

FIELD QC: Field Blanks (FB): None
Equipment Blanks (EB): None
Background Samples (BG): None
Duplicates (D1): SY5653 and SY5654

LABORATORY QC: Matrix Spike: SY5658
Duplicates: SY5658

ANALYSIS: SAS: Fluoride; Ion Chromotography (IC): Chloride, Nitrate-N, and Sulfate; Total, Bicarbonate, Carbonate, and Hydroxide Alkalinity (as $CaCO_3$); Hardness (as $CaCO_3$); pH; and Specific Conductance (SC)

Analyte	Method	Date Analyzed
Fluoride	SM 4500-F-C	May 1, 1993
IC	EPA 300.0	April 21 through 23 and 27 through 30, 1993
Alkalinity	SM 2320	April 28 and 30, 1993
Hardness	EPA 130.2	May 2, 1993
pH	EPA 150.1	April 20 through 23 and 27 through 30, 1993
SC	EPA 120.1	May 3, 1993

IC = Chloride, Nitrate-N, Nitrite-N, and Sulfate
SC = Specific Conductance
SM = Standard Methods

SAMPLING ISSUES:

Sample SY5568 was not analyzed for nitrate-N [as per instructions from the samplers and the Regional Sample Control Center (RSCC)] due to the receipt of the sample after the expiration of the holding time.

ADDITIONAL COMMENTS:

Sample SY5672 was analyzed by IC diluted by a factor of 10, and was not analyzed undiluted. The quality of the data should not be affected as the detection limits for the IC analytes are at the contract required detection limit (CRDL) when multiplied by the 10X dilution factor.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the SAS Client Request Forms (CRFs) for analyses listed above, EPA 600/4-79-020 Methods for Chemical Analysis of Water and Wastes (March, 1983), Standard Methods for the Examination of Water and Wastewater, 17th Edition (1989), and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," (October, 1989).

II. Validation Summary

The data were evaluated based on the following parameters:

Parameter	Acceptable	Comment
1. Data Completeness	Yes	
2. Sample Holding Times	No	B
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	N/A	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	Yes	
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	Yes	
10. GFAA QC Analysis	N/A	
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	N/A	
12. Sample Quantitation	Yes	A,C
13. Sample Result Verification	Yes	

N/A = Not Applicable

III. Validity and Comments

A. The following results are estimated and are flagged "J" in Table 1A.

- All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

B. The result for nitrate-N in sample SY5568 was not reported as the sample was received after the 48-hour technical holding time for nitrate-N was expired. The sample was collected on April 16, 1993, and received by the laboratory on April 20, 1993. The RSCC and the sampler directed the laboratory not to analyze this sample for nitrate-N.

C. The detection limit for nitrate-N in sample SY5672 has been raised by a factor of 10 due to the 10X dilution of the initial injection. No undiluted injection was performed.

A[illegible]TICAL RESULTS
TABLE 1A

Case No.: LV3539 Memo #03
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 8, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L **

Station Location	MUNI-105-01			MUNI-101-01			MUNI-104-01			MUNI-104-02			MUNI-108-01			MUNI-112-01			MUNI-110-01		
Sample I.D.	SY5568			SY5652			SY5653 D1			SY5654 D1			SY5655			SY5656			SY5657		
Date of Collection	4/16/93			4/20/93			4/20/93			4/20/93			4/20/93			4/20/93			4/21/93		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.68			1.2			0.63			0 63			0.64			0.76			0.56		
Chloride	7 8			11.3			8.1			8.0			6 4			10.5			6 8		
Nitrate-N			B	0.43			3.5			3 5			2.4			4 0			2.5		
Sulfate	51 8			34 6			56 9			56 8			47.2			40.6			52.2		
Total Alkalinity *	224			170			253			229			181			237			166		
Bicarbonate Alkalinity *	224			170			253			229			181			237			166		
Carbonate Alkalinity *	20.0 U			20 0 U			20 0 U			20 0 U			20 0 U			20.0 U			20.0 U		
Hydroxide Alkalinity *	20 0 U			20 0 U			20 0 U			20 0 U			20.0 U			20.0 U			20.0 U		
Hardness *	90.4			176			283			293			223			262			205		
pH	7.3			7 4			7.0			7 4			7 4			7.4			7.5		
Specific Conductance **	559			429			571			582			469			556			479		

* As CaCO3 ** Specific Conductance in umhos/cm

Val-Validity Refer to Data Qualifiers in Table 1B

Com -Comments Refer to the Corresponding Section in the Narrative for each letter

IDL -Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1 D2 etc -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3839 Memo #03
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 8, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L **

Station Location	MUNI-111-01			MUNI-106-01			MUNI-102-01			MUNI-01-21			WMW06A-21			WMW06B-21			WMW08A-21		
Sample I.D.	SY5658			SY5659			SY5660			SY5661			SY5662			SY5663			SY5666		
Date of Collection	4/21/93			4/22/93			4/22/93			4/22/93			4/26/93			4/26/93			4/27/93		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.53			0.50			0.38			0.40			0.32			0.44			0.45		
Chloride	7.6			12.5			10.4			35.5			57.3			45.7			7.1		
Nitrate-N	2.7			6.4			8.2			4.9			2.6			2.4			5.9		
Sulfate	55.1			51.9			62.1			34.8			42.6			38.5			17.5		
Total Alkalinity *	174			240			187			178			135			158			198		
Bicarbonate Alkalinity *	174			240			187			178			135			158			198		
Carbonate Alkalinity *	20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U		
Hydroxide Alkalinity *	20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U		
Hardness *	226			306			273			263			244			240			217		
pH	7.2			7.1			7.1			7.1			7.0			6.9			7.4		
Specific Conductance **	483			608			548			532			552			524			443		

* As CaCO3 ** Specific Conductance in umhos/cm

Val-Validity Refer to Data Qualifiers in Table 1B

Com -Comments Refer to the Corresponding Section in the Narrative for each letter

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3S39 Memo #03
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 8, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L **

Station Location	WMIW01F-21			WMIW01E-21			WMIW01E-22			WMIW01D-21			WMIW01A-21			WMIW01S-21			Lab Blanks		
Sample I.D.	SY5667			SY5668			SY5669			SY5670			SY5671			SY5672					
Date of Collection	4/27/93			4/28/93			4/28/93			4/28/93			4/28/93			4/29/93					
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.30			0.27			0.25			0.31			0.31			0.43			0.10 U		
Chloride	19.7			17.7			17.6			19.6			13.9			12.8			0.05 U		
Nitrate-N	0.03 L	J	A	0.52			0.53			9.3			1.1			0.10 U		C	0.01 U		
Sulfate	40.1			47.6			47.6			55.6			72.0			2.0 L	J	A	0.05 U		
Total Alkalinity *	74.2			100			103			178			110			230			20.0 U		
Bicarbonate Alkalinity *	74.2			100			103			178			110			230			20.0 U		
Carbonate Alkalinity *	20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U		
Hydroxide Alkalinity *	20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U		
Hardness *	94.3			126			136			280			172			334			5.0 U		
pH	8.5			8.1			8.2			8.0			7.6			6.0			N/A		
Specific Conductance **	292			343			341			430			559			721			0.10 U		

* As CaCO3 ** Specific Conductance in umhos/cm

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

N A = Not Applicable

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL -Contract Required Detection Limit

ANALYTICAL RESULTS
TABLE 1A

Case No.: LV3839 Memo #03
Site: Newmark-Muscoy
Lab.: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF Technology, Inc.
Date: June 8, 1993

Analysis Type: Low Concentration Groundwater Samples for SAS Fluoride, Chloride, Sulfate, Nitrate-N, Alkalinity, Hardness, Specific Conductance, and pH

Concentration in mg/L **

Station Location Sample I.D. Date of Collection	IDL			CRDL																
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Fluoride	0.10			0.10																
Chloride	0.05			0.10																
Nitrate-N	0.01			0.10																
Sulfate	0.05			1.0																
Total Alkalinity *	20.0			20.0																
Bicarbonate Alkalinity *	20.0			20.0																
Carbonate Alkalinity *	20.0			20.0																
Hydroxide Alkalinity *	20.0			20.0																
Hardness *	5.0			5.0																
pH	N/A			N/A																
Specific Conductance **	N/A			N/A																

* As CaCO3 ** Specific Conductance in umhos cm

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

N A - Not Applicable

D1, D2, etc -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the EPA draft document, "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).

L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.

R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte.

UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

TPO: [ ]FYI [X]Attention [ ]Action Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV3S39 Memo #03 LABORATORY Region IX, Las Vegas

SDG NO. SY5568 SITE NAME Newmark-Muscoy

SOW NO. _____ REVIEW COMPLETION DATE June 8, 1993

REVIEWER [ ] ESD [X] ESAT REVIEWER'S NAME Chris Davis

NO. OF SAMPLES 20 WATER ____ SOIL ____ OTHER

	ICP	GFAA	Hg	Inorganics
1. HOLDING TIMES	____	____	____	0
2. CALIBRATION	____	____	____	0
3. BLANKS	____	____	____	0
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	____			
5. LABORATORY CONTROL SAMPLE (LCS)	____	____	____	0
6. DUPLICATE ANALYSIS	____	____	____	0
7. MATRIX SPIKE ANALYSIS	____	____	____	0
8. METHOD OF STANDARD ADDITION (MSA)		____		
9. ICP SERIAL DILUTION	____			
10. SAMPLE QUANTITATION	____	____	____	0
11. SAMPLE VERIFICATION	____	____	____	0
12. GFAA ANALYTICAL SPIKE		____		
13. OVERALL ASSESSMENT	____	____	____	0

O = No problems or minor problems that affect data quality.
X = No more than about 5% of the data points have limitations on data quality. Data points are either qualified as estimates or rejected.
M = More than about 5% of the data points are qualified as estimates.
Z = More than about 5% of the data points have been rejected.
N/A = Not Applicable.

TPO ATTENTION: Sample SY5568 was not analyzed for nitrate-N (as per instructions from the sampler and RSCC) due to the receipt of the sample after the expiration of the holding time.